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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/980,393 | 02/27/2002 | Francois Schmidt | 111252 | 2878 |

7590 04/07/2003
Oliff & Berridge
Po Box 19928
Alexandria, VA 22320

EXAMINER

DAVIS, OCTAVIA L

ART UNIT PAPER NUMBER

2855

DATE MAILED: 04/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/980,393

Applicant(s)
Schmidt et al

Examiner
Octavia Davis

Art Unit
2855



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 9
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

Serial Number: 09/980, 393

Art Unit: 2855

DETAILED ACTION

Acknowledgment is made of applicant's pre-liminary amendment filed 2/27/02.

Inventorship

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a):

Specification

2. The abstract of the disclosure is objected to because of the following informality. In line 4, replace " analysing " with " analyzing ". Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 - 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katoh in view of Takeuchi et al.

Regarding claims 1, 9 and 11, Katoh discloses a sensor arrangement for an engine control system comprising a first chamber 354 into which fuel is injected via fuel injectors 45, a pressure sensor 92 of which measures the pressure in the first chamber 354 prior to injection and during injection, a temperature sensor 93 of which measures the temperature in the first chamber 354 during injection, a second chamber 364 connected to the first chamber via a drain pipe 368, valves 44 for draining the chambers, the second chamber 364 being drained until a reference pressure is established and an electronic section 66 of which analyzes the signals from the sensors and which controls the valves (See Cols. 7, 8, 10 and 18, lines 40 - 65, 17 - 34, 21 - 41 and 10 - 45) but does not disclose a displacement sensor of which measures the displacement of a piston. However, Takeuchi et al disclose a fuel injection device comprising a first chamber 30 and a second

chamber 31, the chambers being connected by a piston 29 and a detector 203 which measures the displacement of the piston 29 by means of a piston 104 (See Cols. 3, 4 and 9, lines 68 - 69, 1 - 7 and 3 - 15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Katoh according to the teachings of Takeuchi et al for the purpose of, delivering the detection signal from the displacement sensor to an ECU to control a solenoid valve and in turn regulating fuel supply.

Regarding claim 2, in Katoh, the electronic section 66 contains a compensating device enabling the accounting of a pressure difference occurring in the first chamber 354 after successive draining (See Col. 8, lines 16 - 22).

Regarding claims 3 and 4, in Katoh, a back pressure regulator 57, 102 drains the first and second chambers 354, 364 (See Col. 8, lines 16 - 22, See Figs. 1, 2 and 36).

Regarding claims 5 and 6, Katoh lacks the piston 36 being pre-loaded by a spring. However, in Takeuchi et al, the piston 29 is provided with a spring 36. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Katoh according to the teachings of Takeuchi et al for the purpose of, providing a spring mechanism to force a piston toward a chamber.

Regarding claim 7, in Katoh, a cooling system 69 cools the injector

45, the first and second chambers 354, 364, the piston 36 (See Col. 8, lines 59 - 66, See Figs. 1 and 4).

Regarding claim 10, in Katoh, the ECU 66 corrects injection values related to each injection such as pre-recorded calibration data (See Col. 10, lines 4 - 14).

5. Any inquiry concerning this communication should be directed to Examiner Octavia Davis at telephone number (703) 306 - 5896. The examiner can normally be reached on Monday - Thursdays (9:00 - 5:00), Fridays off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz, can be reached on (703) 305 - 4816. The fax phone number for the organization where this application or proceeding is assigned is (703) 746 - 4409.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 - 0956.



OD/2855

3/25/03



EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800